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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/886,307	06/19/2001	Don T. Batson	AMAT/5090/FET/FET/DV	5746

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APPLIED MATERIALS, INC.
2881 SCOTT BLVD. M/S 2061
SANTA CLARA, CA 95050

EXAMINER	
LEE, RICHARD J	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/886,307	BATSON ET AL.	
	Examiner	Art Unit	
	Richard Lee	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-17,19-26 and 28-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-17,19-26 and 28-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because phrases which can be implied, such as "invention" appearing at lines 1, 3, 6, and 8, respective, in the Abstract should be avoided. Correction is required. See MPEP § 608.01(b).

3. Claims 28-30 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 28-30 depends from canceled claim 27 either directly or indirectly, respectively, and as such renders these respective claims indefinite.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 8-12, 17, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aloni et al (6,360,005) in view of Gomibuchi (5,305,391).

As for claims 1, 8-10, 17, and 20, Aloni et al teaches a controller coupled to the receiver and transmitter comprising a processor and at least one substrate imaging program that when executed determines the trigger intervals for at least two trigger signals for the acquisition of at least two images on a substrate surface moving non-linear (see column 11, lines 5-10, column 28, lines 65-67, column 29, lines 1-3. Note: trigger signals are generated by a vision unit in response to a signal received from a stage controller which describes the position where the correct unit will allow for non-linear informalities); transmitting one or more optical signals from the transmitter to the first and second image positions on the substrate surface and receiving at least two trigger signals (i.e., line times, see column 9, lines 37-48) at the receiver and receiving a portion of the one or more optical signals at the receiver from the first image position (see column 9, lines 37-48, column 11, lines 11-15. Note: a scanner is operative to electro-optically scan an object to be inspected and to output a gray level digital representation); interval measuring apparatus to determine the trigger intervals and also comprising of counters, clocks, or any combination thereof (see column 9, lines 49-54); processing the optical signals into an image and displaying the image (see column 9, lines 37-39, column 27, lines 5-7. Note: output a gray-level digital representation, and an operator display such as a CRT). However, this apparatus lacks determining an integration interval for a second sensor of the camera corresponding to the non-linear movement of the substrate surface. Gomibuchi teaches that prior art inspecting systems require an optical system which is complicated in construction (see column 1, lines 29-30 of Gomibuchi). To help alleviate this problem, Gomibuchi discloses

"determining an integration interval for a second sensor of the camera corresponding to the non-linear movement of the substrate surface" (see column 2, lines 39-55, column 6, lines 12-24, wherein the non-linear movement is the rotation, the second interval is the second point of time). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to take the apparatus disclosed by Aloni et al and add the inspection system taught by Gomibuchi in order to obtain an apparatus that can be easily constructed.

As for claims 2 and 11, Aloni et al teaches a receiver comprising a time domain integration camera, a line camera, a CCD camera or combinations thereof (see column 11, lines 11-15 of Aloni et al. Note: the CCD array of the scanner during a single line time).

As for claims 3 and 4, Aloni et al teaches of a transmitter comprising a broad band light source, a narrow band light source, or combinations thereof (see column 31, lines 25-28 of Aloni et al. Note: the upper illuminating system may employ a tungsten halogen lamp).

As for claim 12, Aloni et al teaches of a first trigger interval corresponding to a first motor rotation indicative of the first image position and the second trigger interval corresponding to a second motor rotation indicative of the second image position (see column 28, line 65 to column 29, line 19 of Aloni et al. Note: trigger signals for camera controller are generated by a vision unit in response to signals received from a stage controller, which is controller by the main controller which receives its data from the scanner (i.e., camera or receiving device)).

6. Claims 6, 7, 13-16, 19, 21-26, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aloni et al and Gomibuchi as applied to claims 1-4, 8-12, 17, and 20 in the above paragraph (5), and further in view of Kobayashi (6,388,414).

As for claims 6, 7, and 13-15, Aloni et al teaches the first and second motor rotations are step wise, linear or non-linear (Note: the rotations of the motors are necessary in order to get the required motion mentioned by Aloni et al, see column 28, line 65 to column 29, line 19 of Aloni et al). Aloni et al in view of Gomibuchi do not teach of the trigger intervals being comprised of measuring the rotation of a motor. However, Kobayashi does (see column 4, lines 12-32 of Kobayashi. Note: rotating the step motor a predetermined number of steps in order to get to a certain detection zone). Therefore, it would have been obvious to one skilled in the art to make the trigger intervals reliant on the rotation of the motor in order for the capturing of linear and non-linear motion.

As for claim 16, Aloni et al and Gomibuchi do not teach of trigger intervals that equal the number of steps and determine the image positions which comprises measuring the first number of steps of the stepper motor for the first interval and measuring a second number of steps of the stepper motor for the second trigger interval. However, Kobayashi does (see column 4, lines 14-24. Note: moves 8 steps to get to detection zone and then forward a predetermined number of steps in order to get to the target position). It would have been obvious to one skilled in the art to make the intervals a predetermined number of steps in order to keep the collection of data more precise and also the added benefit of the use of linear and non-linear motion.

As for claims 23 and 24, Aloni et al and Gomibuchi do not teach determining the rotation time of a motor wherein the rotation time defines the interval corresponding to the at least one image position, the rotation time corresponding to a step-wise, linear, or non-linear rotation of the motor. However, Kobayashi does (see column 7, line 55 to column 8, line 10. Note: use timing steps in order to control the exposure time of the camera). Therefore, it would have been

obvious to one skilled in the art to determine the rotation time of the motor corresponding to the image position in order to be used as an exposure time or in order to get a consistent production line.

As for claim 25, Aloni et al and Gomibuchi do not teach determining the interval corresponding to the at least one image position comprising of measuring the rotation of a motor wherein the rotation time to achieve the rotation angle defines the interval. However, Kobayashi does (see column 7, lines 12-23. Note: rotating the step motor at a degree (i.e., angle) of four steps). Therefore, it would have been obvious to one skilled in the art to use degrees in much the same way as steps in order to provide consistency within the detection process.

As for claim 26, this limitation has been address in the rejection of claim 24.

As for claims 21 and 22, Aloni et al and Gomibuchi do not teach determining the integration interval for the second sensor by determining the number of stepper motor steps between the first sensor (i.e., initial position) and the second sensor (i.e., returns to initial position), and counting the steps from the image position from the first sensor to the second sensor. However, Kobayashi does (see column 7, line 55 to column 8, line 10. Note: when the camera is in exposure operation, rotates a certain predetermined number of steps, then reaches the stop or close point, then starts the process over again). Therefore, it would have been obvious to one of ordinary skill in the art to make the integration interval for the second sensor by making it the number of steps from the start trigger point or first sensor to the second sensor in order to give an integration time that is appropriate so as to not overlap the integration process of another set of images.

Regarding claims 31-33, note the Examiner's rejection for claims 1-4, 6-17, 20-26, and 28-30.

Regarding claim 19, Aloni et al and Gomibuchi do not teach wherein the set time is equal to the time between each step plus a dwell time for each step. However, Kobayashi does (see column 7, line 55 to column 8, line 10. Note: using timing steps in order to control the exposure time of the camera and step time plus dwell time (i.e., stop time). Therefore, it would have been obvious to one skilled in the art to provide the step time being equal to the time between each step plus a dwell time for each step so as to be used as an exposure time or in order to get a consistent production line.

7. The applicants argued at pages 10-12 of the amendment filed October 17, 2005 that "... Aloni teaches that the time line of the sample may vary linearly as a function of instantaneous scanner velocity ... If the velocity was non-linear, i.e., the substrate was accelerating or decelerating, the time line could not vary linearly as a function of velocity. Thus, Aloni does not teach or suggest acquiring images on a substrate surface having a non-linear motion. Moreover, Gomibuchi does not teach or suggest acquiring image son a substrate surface having a non-linear motion ... Moreover, Kobayashi does not teach or suggest obtaining information from a surface that is moving non-linearly. Thus Kobayashi does not teach or suggest a modification to the combination of Aloni and Gomibuchi ...". The Examiner respectfully disagrees. Gomibuchi teaches the desire to view objects, i.e. bottles, by rotating the bottle in a non-linear movement on a surface (see column 2, lines 39-55, column 6, lines 12-24). And, such non-linear movement of objects as rotated for inspection as taught by Gomibuchi may obviously be provided within the substrate imaging system of Aloni et al if it is desired to inspect and image substrates while

rotating non-linearly. It is therefore submitted that the claimed invention is rendered obvious in view of the combination of Aloni et al and Gomibuchi.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

4/28/06